Name: Sorin Gabriel Teodorescu

Title/Position: Adjunct Faculty/Lecturer
Sam Houston State University
Department of Science and Engineering Technology
College of Sciences

Degrees Earned

BSME, MSME, PhD

PhD, Mechanical/Materials Engineering, Auburn University, AL, 2002
Thesis - "Investigation of Electromagnetical Stirring on Materials Processing"
BSME /MSME, Mechanical Engineering, University of Craiova, Romania, 1997

Professional Licensure and Certifications

PE (Professional Engineering, Mechanical, TX)
PMP (Project Management Professional)

Selected Peer-Review Publications and Conference Exhibitions

1. S.I. Bakhtiyarov, M. Dupac, R. A. Overfelt and **S. G. Teodorescu, "**Fluid Flow Effect in Electrical Conductivity Measurements of Molten Metals by Inductive Technique**",** *Journal of Fluid Engineering,* 2002.
2. S.I. Bakhtiyarov, R.A. Overfelt, **S.G**. **Teodorescu,** "Electrical Resistivity Measurements on Binary Al-15% In Alloy", *Journal of Materials Science and Technology,* Vol. 19, pp.322-326, 2002.
3. S.I. Bakhtiyarov, R.A. Overfelt, **S.G. Teodorescu,** "Electrical and Thermal Conductivity on A319 and A356 Aluminum Alloys", *Journal of Materials Science,* Vol.36, pp. 1-6, 2001.
4. **S.G. Teodorescu,** S.I. Bakhtiyarov, R.A. Overfelt, "An Inductive Technique for Electrical Conductivity Measurements on Molten Metals", *International Journal of Thermophysics,* vol.22, No.5, 2001.
5. S.I. Bakhtiyarov, M. Dupac, R. A. Overfelt and **S. G. Teodorescu**,"On Electrical Conductivity Measurements of Molten Metals by Inductive Technique", *Journal of Fluid Engineering,* vol.126, No.3, pp.468, 2004.
6. S.I. Bakhtiyarov, R.A. Overfelt, **S.G**. **Teodorescu,** "Fraction Solid Measurements on Solidifying Melt", *Journal of Fluid Engineering*, vol. 126, 2, pp.193-197, 2004.
7. A. Mehrabian, D. E. Jamison, **S.G. Teodorescu**, "Geomechanics of Lost-Circulation Events and Wellbore-Strengthening Operations*", Society of Petroleum Engineers Journal, 2015.*

Selected Refereed Abstracts

1. **S. G. Teodorescu**, M. Dupac, S.I. Bakhtiyarov, R. A. Overfelt, " Numerical Simulation of Fluid Flow During Electromagnetic Stirring of Metals", *ASME Congress*, New York, NY, 11-16 November, 2001.
2. S.I. Bakhtiyarov, R.A. Overfelt, **S.G**. **Teodorescu,** "Simultaneous Measurements of Local Velocities and Temperature in Liquid Metals by Permanent-Magnet Probe", *34th Intersociety Energy Conversion Engineering Conference*, Vancouver, B.C., August 2-5, 1999.

3. S.I. Bakhtiyarov, R.A. Overfelt, **S.G**. **Teodorescu**., "Local Velocities Measurements in Liquid Metals by Permanent-Magnet Potential Probe", *SECTAM XX, 20es Southeastern Conference on Theoretical and Applied Mechanics*, Callaway Gardens, Pine Mountain, GA, April 16-18, 2000.
4. **S.G. Teodorescu,** S.I. Bakhtiyarov, R.A., Overfelt "Contactless Inductive Technique for Electrical Conductivity Measurements on Molten Metals", *Fourteenth Symposium on Thermophysical Properties*, Boulder, CO, June 25-30, 2000.
5. S.I. Bakhtiyarov, M. Dupac, R. A. Overfelt and **S. G. Teodorescu, "**Fluid Flow Effect in Electrical Conductivity Measurements of Molten Metals by Inductive Technique**",** *Forum on Advances in Free Surface and Interface Fluid Dynamics VIII, Joint ASME-European Fluids Engineering*, Montreal, Canada, July 14-18, 2002.
6. S.I. Bakhtiyarov, R.A. Overfelt, **S.G**. **Teodorescu,** "Fraction Solid Measurements on A319 Aluminum Alloy", ASME Conference, *Internal Combustion Engine Division,* New Orleans, LA, 17-22 November, 2002.
7. S.I. Bakhtiyarov, **S.G**. **Teodorescu,** R.A. Overfelt, "Electrical and thermal conductivity measurements on commercial magnesium alloys", 107th AFS Congress, April 26-29, Milwaukee, WI, 2003.
8. **S.G. Teodorescu**, W. Gillette, "Small biofuel cell for portable devices", 14-18 November, Electrochemical Society Conference, Palm Springs, CA, 2005
9. **S.G. Teodorescu**, W.L.Gellett, M. Kesmez, J.Schumacher, "Development o an Enzymatic Biofuel Cell Stack", Electrochemical Society, ECS, 2006
10. **S.G. Teodorescu**, E.C. Sullivan and P.E. Pastusek, '"Bit Dysfunction Characterization Using a Sensor System at the Bit", ASME/OMAE Conference, 10-15 June, San Diego, CA, OMAE-2007-29738, 2007

Research Monographs and Technical Reports

1. "Metabolic bio-inspired batteries", Army STTR Phase I Final Report, 2004.
2. "Maritime Chemical Warfare/ Toxic Industrial Chemical Detector", Army SBIR Phase II Final Report, 2004.
3. "Monitoring Apoptosis and Cyto-toxicity of Anti-Tumor Drugs in Microgravity", NASA SBIR Phase II Final Report, 2004.
4. "An Inexpensive Absorption-based Oxygen Sensor for Aircraft Fuel Tanks, Air Force SBIR Phase I Final Report, 2004.
5. "Novel Reagent-less Protein Detection using Nanotechnology", NASA SBIR Phase II Final report, 2004.
6. "An Innovative Ultramicroelectrode Array for Field Deployable Trace Metal Analysis", DOE SBIR Phase II Final Report, 2004.
7. "A novel, Small High-Power Output Biofuel Cell", Air Force SBIR Phase I meeting, Eglin AFB, FL, 2005.
8. An Innovative, Economical Process for the Electrochemical Synthesis of Ammonia, USDA SBIR Phase II Final Report, 2005.

Funded External Grants

1. Metabolic Bio-Inspired Batteries, Army STTR, Phase I, 2004
2. Metabolic Bio-Inspired Batteries, Army STTR, Phase II, 2005
3. A novel, Small High-Power Output Biofuel Cell", Air Force SBIR Phase I, 2005

Peer-Review Presentations/Posters

1. "Drilling Vibrations Fundamentals", Baker Hughes Training Workshop, 2009
2. "Advanced Vibration Analysis using High Speed data Analysis", Baker Hughes, 2010
3. "Downhole Telemetry Methods", Weatherford Strategic Development and Training Initiative, 2011.
4. "Measurement While Drilling Technologies", National Oilwell Varco, Rig Automation Workshop, 2013.
5. "Application of Drilling Fluids and Solids Control Equipment in Oil Industry", Halliburton, Roadmap to Automation, 2014.
6. "Waste Management and Automation of Rig Surface Equipment", Halliburton, Dealing with Uncertainties, 2015.

Work or Professional Experiences

SUPERIOR ENERGY SERVICES, Houston, TX **2017-present**

Engineering Manager

Overseeing engineering tools design and development, manufacturing QA/QC, BHA optimization.

- Downhole tool design (stabilizers, reamers, filter subs, jars);
- Failure analysis (tools, hard banding, operational issues);
- Strategic technology development;
- Preventive maintenance, tool tracking, lifetime estimates.

X-TREME SOLUTIONS, The Woodlands, TX **2016-2017**

Senior Engineer Consultant

Overseeing engineering contracts and consultations, ensuring proper resource allocation, work load, quality and timely delivery of projects. Setting strategies for business expansion.

- Providing technical solutions and sales presentations on solids control equipment, process improvement, product development, automation, application development;
- Condition based monitoring of BOPs for kick detection, production monitoring and estimated life prediction, statistical analysis, failure mode triggering and identification, recommendation for process improvement;
- Providing consulting services on reliability for process improvement on waste management and cuttings transport; drilling optimization, managed pressure drilling;
- Modeling of telemetry and hydraulics of coiled tubing operation using mud pulser (Matlab).

HALLIBURTON ENERGY SERVICES, Houston, TX **2013 to 2015**

Global Engineering Manager

Directed engineering and application development lifecycle projects to account for direct and pull-through revenues. Managed/coached team of 25+ cross-functional engineers, scientists and application developers.

- Directed and provided input to cross-functional, global teams (drilling, completion, and software applications) to drive innovative technologies, resulting in multiple development projects;
- Managed FEED, pilot plant (1Mt/hr) and commercial (6Mt/hr) scale up development on solvent extraction system for fluid separation, to include process design and implementation, HSE aspects and cost control;
- Taught drilling fluids and solid control equipment course to new field engineers;
- Led development effort of fast-tracked real-time fluid monitoring system (BaraLogix^{TM}), from inception to commercialization readiness (concept, design, P&ID, control system, GD&T, design review, FEA, testing, validation, certification, manufacturing readiness);

- Provided engineering solutions (internal consultant) for global operations issues on rig surface equipment, defining and implementing long term strategy;
- Led projects on fluid phase separation, weight control materials, ore sorting – presented and promoted findings to executive management on potential new products/processes;
- Recruited personnel and reviewed/mentored direct reports; prepared and closely monitored budgets;

NATIONAL OILWELL VARCO, Conroe, TX **2012 to 2013**

Engineering Manager

Interfaced with global operations and customers, to develop next generation real-time communication tools. Provided for seamless transition of products to commercialization, resulting in fast markets.

- Directed development of real-time downhole monitoring tool (Black Box X-Stream™) from design (mechanical, PCB, power management and firmware) to field validation and market deployment, providing distributed sensors along the drillstring for dynamics evaluation;
- Worked with operations to develop next generation vibration mitigation tools (whirl, stick/slip);
- Documented methods to analyze drilling dynamics and quantify tool dysfunction through high speed data analysis and taught classes to application/optimization engineers;
- Defined and implemented strategic technology for rig automation, streamlining drilling activities and cost savings;
- Prepared technical evaluation reports and market intelligence to executive management on various technologies (monitoring while drilling tools, telemetry technologies) used for merger and acquisition activities and financial/corporate decision making.

WEATHERFORD INTERNATIONAL, Houston, TX **2010 to 2012**

Research & Development Manager

Prepared timelines, business models, capital estimates and overall materials balance to showcase strategic technologies to customers. Managed, supervised and reviewed engineers and scientists.

- Led team to develop bottom hole assembly (BHA) static and dynamic analysis software, torque and drag (soft and stiff string) analysis, provided input for hydraulics application development;
- Ran BHA analysis software to analyze and optimize BHAs, prepared reports for customers; reviewed technical proposals for tenders, technology development and other assigned projects;
- Evaluated downhole tool failures (thru FEA, EDR data, daily reports) and worked with operations to mitigate underlying problems; mentored engineers on vibration fundamentals and drilling dysfunctions;
- Identified cutting edge technologies and updated internal strategic technology (Drilling & Evaluation, Completion & Production, software development);
- Reviewed technical proposals from top-rated universities to develop various technologies and helped implementing them to the oil industry.

BAKER HUGHES INC., The Woodlands, TX **2006 to 2010**

Team Leader

Provided leadership for development of downhole dynamic monitoring system (MultiSense™/DataBit™) to improve application-based performance and gain competitive advantage.

- Led development and implementation of drilling dynamics monitoring system (design, development, qualification, field testing, evaluation and manufacturing readiness);
- Trained worldwide application and field engineers on technology utilization, data interpretation and cost savings opportunities for customers;
- Worked with marketing department on commercialization efforts (service strategy, dynamics training modules, deployment, market analysis), decreasing product time to market;

- Collaborated with R&D teams (drillstring dynamic modeling, rock bit design; system integration) to improve performance; communicated findings at conferences and workshops;
- Saved 30% per unit negotiating contracts with vendors for turnkey delivery of integrated system.

LYNNTECH, INC.

Research Scientist/Senior Product Development Engineer 2003 to 2006

Brought and managed more than $2.5M funding from governmental agencies (DOD, DOE, NASA) as Principal Investigator, both SBIR and STTR, successfully took projects to fruition from inception to commercialization;
- Reviewed/approved engineering drawings for manufacturing purposes, performed/approved system designs and FMEA (Failure Mode and Effect Analysis) on critical components;
- Resolved emerging engineering design/manufacturing/operation issues and served as internal engineering consultant on various projects (ozone generation, mercury detector, fuel cells);
- Performed finite element analysis on fuel cell components for proper operation;
- Used DFA, DFM tools and LEAN manufacturing techniques for product development/rapid prototyping.

SPACE POWER INSTITUTE - **Research Assistant/R&D Engineer 1998 to 2003**

- Developed a novel technique for determining optimum heat treatment processes of metal cast and injection molded parts, requiring less time, and saving energy (50%);
- Performed fluid flow simulation and thermal analysis of the solidification process; provided manufacturing consulting services for mold design, holding time, automation, process improvement;
- Conducted materials characterization, improved design of sand core cold box, gating system, riser and sprue for manufacturability;

Honors and Awards

- Best paper award – Baker Hughes Tech Forum, 2008
- Recipient of All American University Award, 2002.
- Presidential fellowship, Auburn University, AL 1999-2002.
- Full scholarship to complete BS and MS offered by Romanian government, 1992-1997.

13 US Patents and numerous other pending

- 9,670,727 – Donwhole motor coupling systems and methods
- 9,624,729 – Real time bit monitoring
- 9,464,520 - Method of inc. remote communication with oilfield tubular handling apparatus
- 9,347,309 - Cement plug location
- 9,238,958 – Drill Bit with Rate of Penetration Sensor
- 8,975,861 – Power Source for Completion Applications
- 8,757,290 – Method of Monitoring Wear of Rock Bit Cutters
- 8,376,065 – Monitoring Drilling Performance in a Sub-Based Unit
- 8,162,077 – Drill Bit with Weight and Torque Sensors
- 8,028,764 – Methods and Apparatuses for Estimating Drill Bit Condition

- 8,016,050 – Methods and Apparatuses for Estimating Drill Bit Cutting Effectiveness
- 8,006,781 – Method of Monitoring Wear of Rock Bit Cutters
- 7,314,544 – Electrochemical Synthesis of Ammonia

Other Competencies

CAD/CAE:	Solid Edge, Pro/E, Solid Works, AutoCAD, AutoDesk Inventor, UG/NX3
ANALYSIS:	WellCAD, Rocky, BHASys-Pro, Flow 3D, Pro-Mechanica , ANSYS, SAP, Algor.
CONTROL:	Labview, Working Model, FC Power.
COMPUTATION:	Matlab, Mathematica, Maple, C, Pascal.
USPIA training:	Lean Manufacturing/ Six Sigma for Product Development/Rapid Prototyping.

Classes Taught

Fall 2016
Sam Houston State University, Agricultural Science and Engineering Department
ETEC 1371.01 – Descriptive Geometry (3 credit hrs, class + lab)
ETEC 1371.02 – Descriptive Geometry (3 credit hrs, class + lab)
ETEC 1340 – Electronics Technology (3 credit hrs, class + lab)

Spring 2017
Sam Houston State University, Agricultural Science and Engineering Department
ETEC 1371.01 – Descriptive Geometry (3 credit hrs, class + lab)
ETEC 1371.02 – Descriptive Geometry (3 credit hrs, class + lab)
ETDD 1361.04 – Engineering Graphics (3 credit hrs, class + lab)
Sam Houston State University, Computer Science Department
COSC 4320.02 – System Modeling and Simulation (3 credit hrs. class)

Fall 2017
Sam Houston State University, Science and Engineering Technology
ETEC 1371.01 – Descriptive Geometry (3 credit hrs, class + lab)
ETDD 1361.04 – Engineering Graphics (3 credit hrs, class + lab)
ETEC 1340.01 – Electronics Technology (3 credit hrs, class + lab)
ETEC 1340.03 – Electronics Technology (3 credit hrs, class + lab)